S1100w Installation Guide

VERINT

POWERING ACTIONABLE INTELLIGENCE®

S1100w

Installation Guide

Verint Video Solutions

© 2005 Verint Systems Inc. All rights reserved.

By providing this document, Verint Systems Inc. is not making any representations regarding the correctness or completeness of its contents and reserves the right to alter this document at any time without notice.

Verint, Actionable Intelligence, BehaviorTrack, Dellis, HealthCheck, Lanex, Loronix, Loronix Video Manager, MotionTrack, microDVR, nDVR, netDVR, Nextiva, Powering Actionable Intelligence, SmartSight, and Video Manager are trademarks of Verint Systems Inc., its subsidiaries or affiliates. All other registered trademarks, trademarks, and any associated logos are the properties of their respective owners.

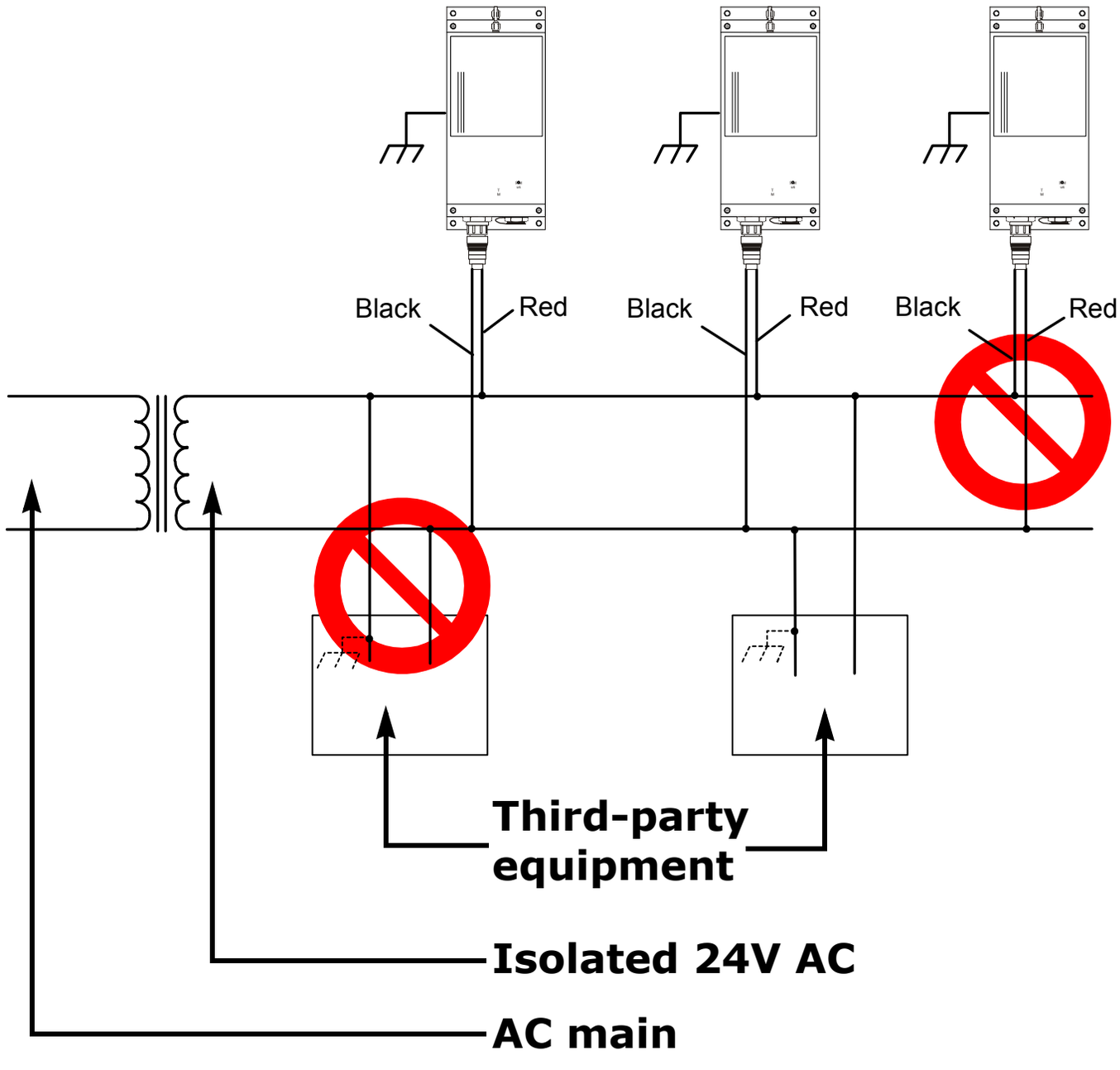
Published by:

Verint Video Solutions
1800 Berlier Street
Laval (Quebec)
Canada
H7L 4S4
www.verint.com/videosolutions

Publication date: May 3, 2005

Warning: *If you connect multiple devices on the same 24V AC power supply, always wire them the same way: The red power wires of all devices must be on the same power supply terminal. Since the black power wire of the device is internally connected to its chassis (earth), swapping the power connection scheme from device to device will short out the AC power supply.*

Warning: *You can install third-party equipment with an earth-referenced power input on the same power source as the devices. To do so, you must connect the earth-referenced terminal of the equipment to the same AC terminal as the black wire of the devices. Failing to do so will short out the AC power supply.*


Black
Red
Black
Red
Black
Red
Third-party equipment
Isolated 24V AC
AC main

Contents

Preface vii
Who Should Read this Guide viii
How to Use this Guide viii
About Us ix

Chapter 1 ■ Overview 1
About the S1100w 2
Shipment 3
Casing Description 4

Chapter 2 ■ Configuration and Installation 7
Overview 8
Configuration 9
Point-to-Point Connection 16
Installation of the Transmitter 18
Installation of an Antenna 21
Status LED 22

Index 25

Edge Device Description Form 27

Preface

The *S1100w Installation Guide* explains how to configure and install the Nextiva™ S1100w wireless video transmitters.

Who Should Read this Guide

This guide is intended for engineers and technicians who will install the S1100w edge devices. It provides basic information on how to configure and install the devices.

This guide assumes that you are familiar with:

- Installation and manipulation of electronic equipment
- General use of computers
- Basic network concepts and practices
- Radio frequency (RF) regulations
- Microsoft Windows operating systems

How to Use this Guide

The *S1100w Installation Guide* is divided into the following chapters:

1. **Overview**—Provides a brief description of the features of the S1100w transmitter and an illustration of its casing.
2. **Configuration and Installation**—Presents the configuration and installation procedures of the transmitter.

An index and a device description form complete the guide.

In addition to this guide, the following documentation is also available:

- *S1100w User Manual*—Contains conceptual information on the configuration, installation, and operation of the S1100w edge devices.
- *SConfigurator User Manual*—Presents the instructions on how to use a proprietary Verint Video Solutions software to configure the edge device, connect it to other devices, and update its firmware.
- *Release Notes*—Contain information about S1100w upgrades and known issues still under investigation, as well as a description of features not covered in this version of the documentation.

All these documents are contained on the *SmartSight Utilities* CD shipped with the device.

About Us

Verint Systems (NASDAQ: VRNT) is a leading global provider of video security, surveillance and business intelligence solutions. Verint Video Solutions transform digital video into actionable intelligence: timely, mission-critical insights for faster, more effective decisions.

Today, more than 1000 companies in 50 countries use Verint Systems solutions to enhance security, boost operational efficiency, and fuel profitability.

Web Site

For information about the Nextiva line of products, visit www.verint.com/videosolutions.

To download application notes and user documentation, as well as request the latest versions of firmware and software, you need access to the Verint Video Solutions partner extranet. To register, go to www.verint.com/smartsight/support.

The data sheets of the Nextiva edge devices are also available directly at www.verint.com/smartsight/support.

Support

If you encounter any type of problem after reading this manual, contact your local distributor or Verint Video Solutions representative. You can also use the following sections on the Verint Video Solutions partner extranet to find the answers to your questions:

- SmartSight FAQ
- SmartSight Requests
- SmartSight My Account

Verint Video Solutions technical support personnel is available to help you use your Nextiva edge devices and the related software:

- By phone: 1 888 494-7337 (North America) or +1 450 686-9000 Monday to Friday, from 8:30 to 17:30 EST
- By fax: +1 450 686-0198

1

Overview

The S1100w is the industry's first wireless video transmitter allowing digital video transmission over multiple license-free bands. It delivers high-quality MPEG-4-based video at 30 frames per second in NTSC (25 in PAL) over local and wide area networks (LANs and WANs). This wireless server is built on open standards to provide long-term investment protection.

Note: The S1100w transmitters require professional installation.

About the S1100w

The S1100w leverages the SPCF MAC (Media Access Control) protocol, which resolves the “hidden node,” quality of service, range, and security problems inherent to 802.11 wireless networking products.

The S1100w covers the 2.4 GHz and 5 GHz frequency bands in North America and Europe.

You can purchase an S1100w transmitter with a motion track device (*S1100w-MT*). It provides the most accurate, cost effective wireless outdoor motion tracking capability available today. It incorporates adaptive digital processing technology to achieve highly sensitive detection in a wide range of operating environments with very low false alarm rates. For more information, refer to the *S1100w User Manual*.

Each transmitter is configured to interface, right out of the box, with the most popular camera data port configuration (4800 baud, 8 data bits, no parity, 1 stop bit).

Shipment

Your S1100w shipment contains the following items:

- The requested transmitter, which comes with an integrated patch antenna (with a gain of 8.5 dBi in the 2.4 GHz band or 13 dBi in the 5 GHz band)
- A wall mount bracket set, already installed on the transmitter
- A pole mount bracket set, including stainless steel clamps
- A cable assembly for video, power, and serial port (*CAB9P*)
- The *SmartSight Utilities* CD containing the documentation and release notes for the device as well as the SConfigurator application
- This installation guide

The shipment may also contain the following options:

- A high-gain antenna

  Warning: When choosing an antenna, you must ensure that the combined transmission power of the transmitter and antenna does not exceed the maximum value established by your country's regulations. For more information, refer to the S1100w User Manual*.*

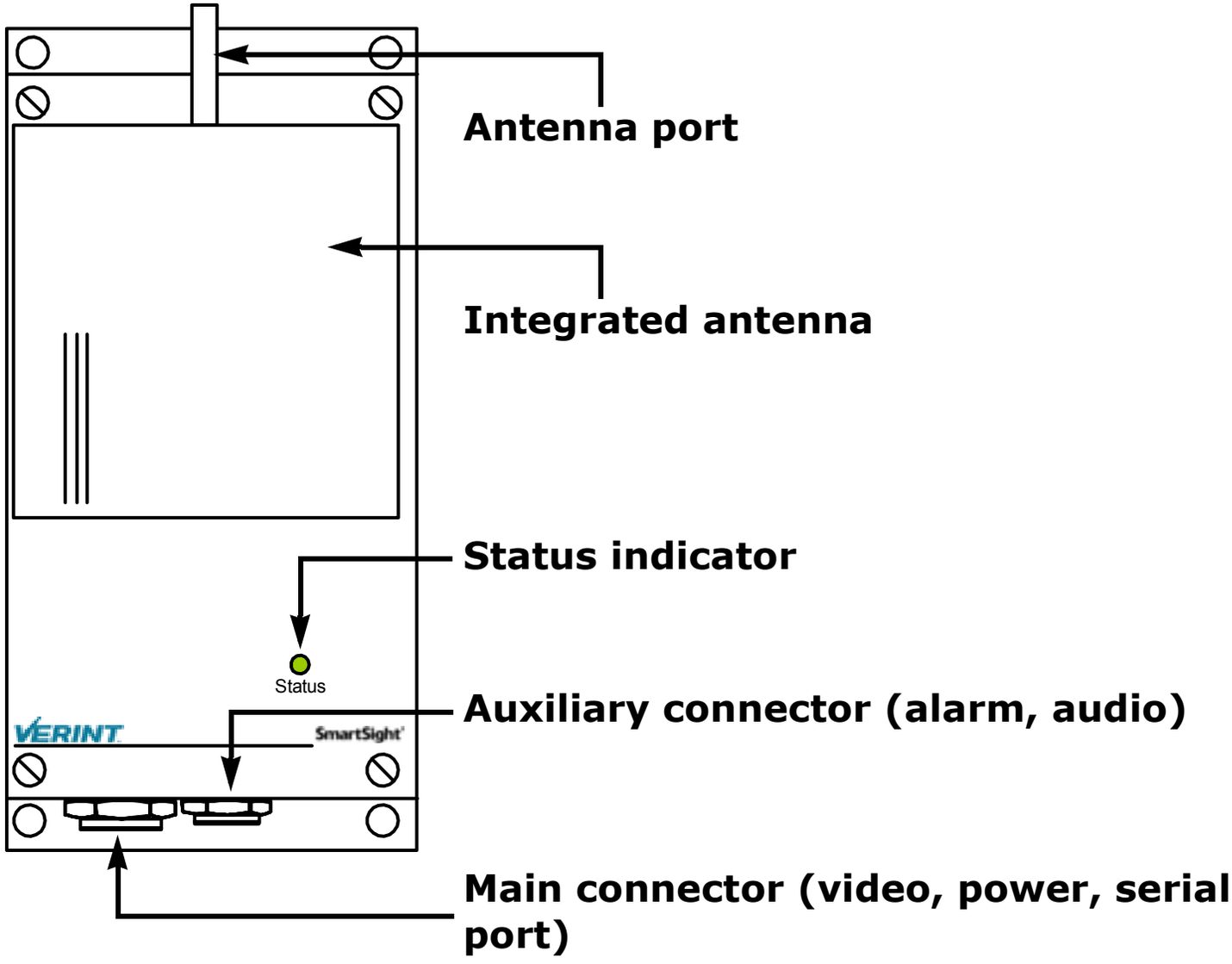
- A junction box (*JBOX*)

- An alarm/audio cable assembly (*CAB8P*)
- A power supply

  Note: If you are using a power supply other than those supplied by Verint Video Solutions, you need to ensure that they have a minimum capacity of 1A (for 12V DC) or 30 VA (for 24V AC).

Casing Description

The S1100w electronics are enclosed in a weather-tight cast aluminum module. All cable entries are mounted on the underside of the module to maintain its weatherproof properties. The front panel integrates one bicolor visual indicator that illustrates the operational state of the transmitter.


Antenna port
Integrated antenna
Status indicator
Status
Auxiliary connector (alarm, audio)
VERINT
SmartSight
Main connector (video, power, serial port)

2

Configuration and Installation

The steps required to prepare your S1100w transmitter for operation are:

- Basic configuration, mainly for communication and serial connection
- Establishment of a point-to-point connection between the S1100w transmitter and a receiver, if required
- Physical installation in its final location

Overview

In a wireless application, the order in which you configure the devices (either the first time or later when they are installed in the field) is critical if you do not want to lose access to them. You should then:

1. Configure the devices starting with the farthest (in terms of number of RF hops) from the computer used in the setup process.
2. One step at a time, get closer to the computer.

The S1100w transmitters require the presence of an S3100 outdoor wireless bridge to send their digitized data to a wired network.

The minimum hardware and software requirements for the host computer needed to configure the edge device are:

- An Ethernet network card
- A serial port (not through a USB converter)
- Windows 2000 Service Pack 2 or higher, or Windows XP

Configuration

The first step in preparing an S1100w transmitter is setting its wireless, IP, and serial port parameters using the embedded command line interface (CLI). Write down this information in the form located at the end of the guide, on page 27.

To configure the transmitter, you need the proprietary SConfigurator tool. It is included on the *SmartSight Utilities* CD shipped with your device; you can also find its latest version on the Verint Video Solutions extranet (**Technical Support > Downloads > Firmware Upgrades**). You have to copy its executable file to the hard disk of your computer.

For more information about the CAB9P cable supplied with your order, refer to the *S1100w User Manual*.

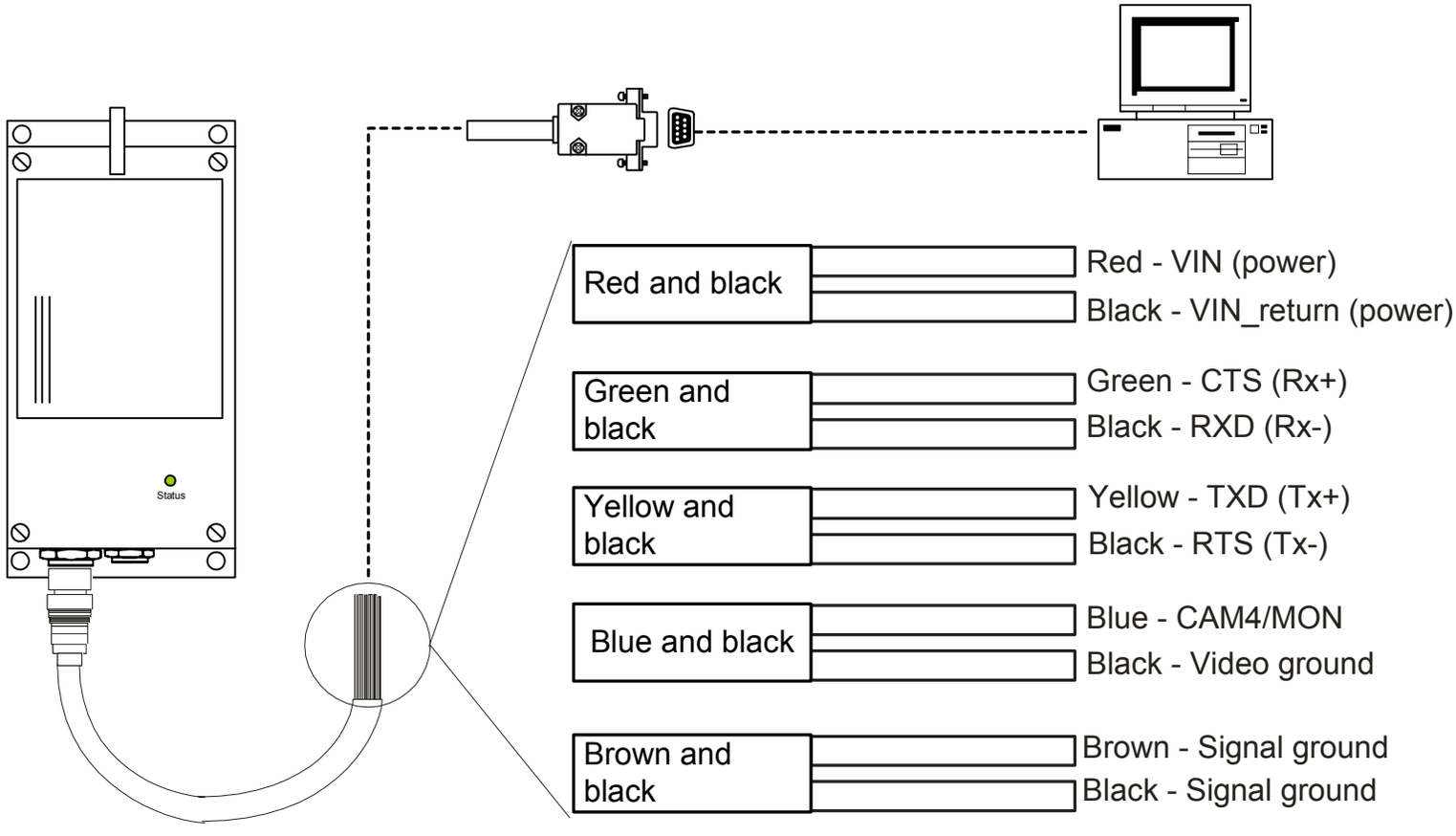
To prepare the transmitter for configuration:

1. In a lab, unpack the S1100w transmitter and its associated S3100 outdoor wireless bridge and place them on a table.
2. Connect the external antenna on the S3100 and optionally on the S1100w.

   Warning: To avoid material damages, you must never power any two devices while their antennas are facing one another with a distance of less than 10 feet (3 meters).

3. Unpack the CAB9P cable assembly and plug its mating connector on the main connector of the S1100w.

4. Connect the DB-9 plug of the cable to a COM port on your computer.



5. Power the transmitter using the red and black wires of the CAB9P cable. In 12V DC, the red wire is for input and the black wire is for power ground. In 24V AC, both wires are used for power.

The status LED turns steady red and then flashes green, indicating normal operation.

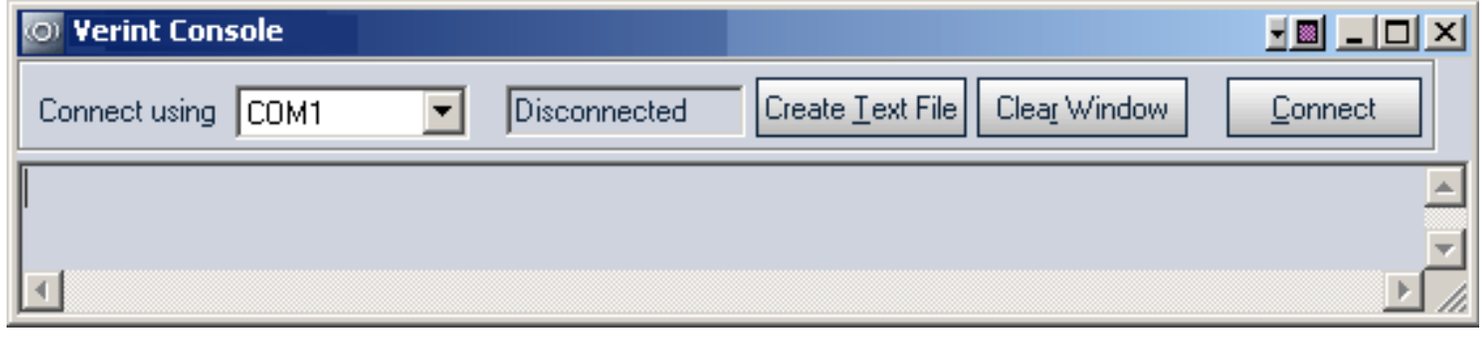
To set the parameters:

1. Start the SConfigurator software.

   The SConfigurator window appears.

2. From the General tab, click **Console**.

   The Verint Console window appears.



3. In the **Connect using** list, select the COM port used to communicate with the transmitter.

4. Click **Connect**.

The CLI main menu appears.

```
**********************************
Main Menu
------------------------------
Menus:
1) Serial Port
2) Access Management
3) Network
4) Wireless Communication
5) System Status
6) Advanced

Commands:
s) Save Settings
r) Reboot System
l) Load Default Configuration
q) Quit
**********************************
```

5. Select **Wireless Communication**, then press **Enter**.

The Wireless Communication menu appears.

```
**********************************************
Main Menu \ Wireless Communication
----------------------------------------------
Menus:
1) Advanced Wireless Setup

Parameters:
2) Passkey          : ********
3) MAC Mode         : SPCF
4) MAC Role         : Client
5) RF Band          : 802.11g (2.4 GHz OFDM)
6) Channel          : Auto
7) Tx Bit Rate      : Auto
8) Antenna Gain     : 0 dBi
9) ISO Country Code: UNITED_STATES (840)

Commands:
p) Previous Menu
**********************************************
```

6. Change the wireless passkey of the transmitter.

The case-sensitive passkey must have exactly 16 characters (if the format is string—default) or 32 digits (if hexadecimal).

For the wireless connection to be secure, do no enter a known name (like a street name), but instead use a mix of digits and letters. Furthermore, do not disclose the passkey. The connection security is based on the secrecy and uniqueness of the passkey.

7. Select the country of operation of the transmitter.

8. Press **p** to go back to the CLI main menu.

9. Select **Network**, then press **Enter**.

The Network menu appears.

```
**************************************************
Main Menu \ Network
--------------------------------------------------
Parameters:
1) DHCP Configuration         : Disabled
2) Local IP Address           : 192.168.135.83
3) Subnet Mask                : 255.255.255.0
4) Gateway                    : 192.168.135.2
5) Primary DNS Server Address: 0.0.0.0
6) Backup DNS Server Address  : 0.0.0.0
7) Ping Request               : 0.0.0.0

Commands:
i) Ping Remote Address
p) Previous Menu
**************************************************
```

10. Set the local IP address, subnet mask, and gateway, as required.

11. Go back to the CLI main menu.

12. Select **Serial Port > RS-232/422/485**.

The RS-232/422/485 menu appears.

```
**************************************************
Main Menu \ Serial Port \ RS-232/422/485
--------------------------------------------------
Parameters:
1) Bit Rate                  : 4800 bits/second
2) Parity                    : None
3) Stop Bits                 : One
4) Data Bits                 : 8
5) Line Driver               : RS-422
6) RS-422/485 Operating Mode: RS-422 4 Wires

Commands:
p) Previous Menu
**************************************************
```

13. Set the parameters to match those of the target equipment (for instance, a camera or dome).

14. Go back to the CLI main menu.

15. Save the changes by pressing **s**, then **Enter**.

16. Exit the CLI by pressing **q**, then **Enter**.

The configuration of the S1100w is now complete.

17. Configure the outdoor wireless bridge for a point-to-multipoint application.

For the complete procedure, refer to the *S3100 Installation Guide*.

18. Using SConfigurator, ensure that the S1100w and its wireless bridge communicate well together:

- ☐ In the Units tab, the S1100w transmitter should be hierarchically positioned under its S3100.
- ☐ In the Link Status pane of the S3100, the S1100w transmitter should be in the Clients/Slaves list.
- ☐ Ensure that there is end-to-end video transmission in the lab before installing the devices in their final location.

Point-to-Point Connection

To allow video display on a monitor in a point-to-point context, you have to create a fixed connection between the S1100w transmitter and an S1500e or S1600e receiver. Typically, both devices sit on the same IP subnet as SConfigurator and have the same VSIP port; to access other devices, refer to the device discovery section in the *SConfigurator User Manual*.

Note: The receiver must be running firmware version 3.10 or higher.

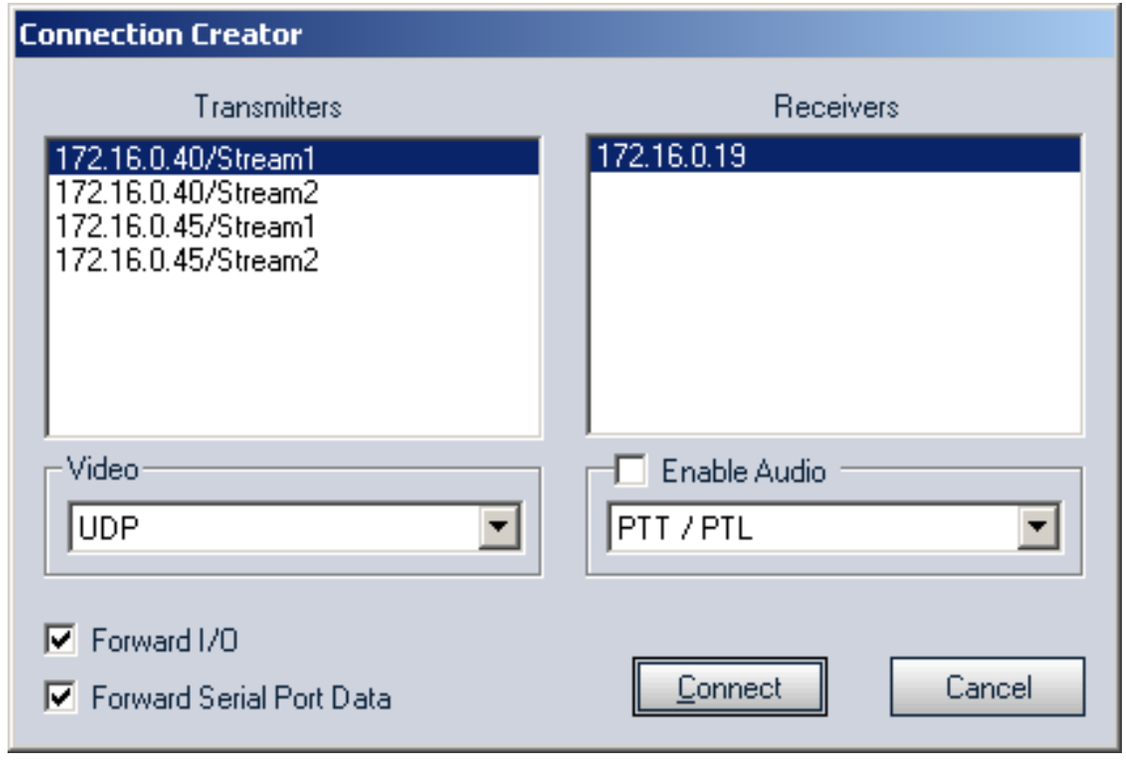
For more information about the connection procedure, refer to the "Managing Connections" chapter, in the *SConfigurator User Manual*.

To perform a point-to-point connection:

1. Start SConfigurator.
2. In the Units tab, discover the desired devices.

   The discovered devices appear in the Units box.
3. Select the **Connections** tab, then click **Add**.

   The Connection Creator window appears.



4. Select a transmitter in the left column and a receiver in the right one.

   In the Transmitters column, you have access to the two encoders of each input; the video stream is the same for both.

5. To disable I/O data transmission (for example, alarms), clear **Forward I/O**.
6. To disable serial port data transmission (like PTZ commands), clear **Forward Serial Port Data**.
7. To enable audio between the devices, ensure that **Enable Audio** is checked, then select the audio mode.
8. Click **Connect**.

You should now have video on the monitor connected to the receiver.

Installation of the Transmitter

When the S1100w is properly configured, it is ready to be installed.

Warning: Always mount the transmitter with the mating connectors pointing downwards. Otherwise moisture may penetrate the device; the associated repair costs would not be covered by the warranty.

When installing colocated wireless systems, you have to take into account the following distance limitations:

- To avoid material damages, you must never power any two devices while their antennas are facing one another with a distance of less than 10 feet (3 meters).

- With different frequency bands or with non-adjacent channels in the same band, two devices can be side by side with no minimum distance between them.
- If using adjacent channels, refer to the “Separation Between Devices Using Adjacent Channels” appendix in the *S1100w User Manual* for the minimum distances to respect.

To install an S1100w transmitter:

1. To install the S1100w on a light pole or mast, use the supplied pole mount brackets and stainless steel clamps. For wall mounting, use the side brackets already installed on the transmitter.
2. If you are installing the S1100w equipment in a lightning prone environment or in a site where large AC mains power fluctuations are a common occurrence, add additional external surge protection to all vulnerable connections.

   Vulnerable connections are those that run for a long distance between the S1100w and the connected equipment. For more information, refer to the “Surge Protection” appendix in the *S1100w User Manual*.
3. If the S1100w will be directly exposed to the sun in an environment likely to reach 122°F (50°C), install a sun shield.
4. If required, install an external antenna (see page 21).

5. Apply silicone grease on the mating connector of the CAB9P cable and on the main connector of the device.

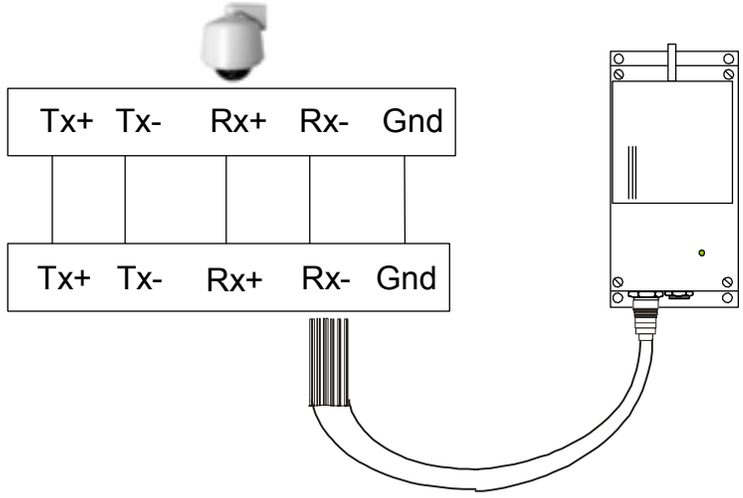
For the detailed procedure, refer to the leaflet shipped with the cable.

6. Connect the CAB9P cable to the S1100w.

To properly install the cable connector on the transmitter, you have to turn until you feel a positive click.

7. Plug the BNC video connector of the CAB9P cable on the target device.

8. Using the CAB9P cable, perform the serial connection to the target device. For example, here is an RS-422/485 4-wire setup:



For the detailed description of the RS-422/485 connections, refer to the “Configuring and Installing the Device” chapter in the *S1100w User Manual*.

9. If you are using a junction box, route all wires to it first; then route the wires from the box to the target device.

10. Power up the transmitter.

Installation of an Antenna

If you bought a high gain antenna, install it after the S1100w is in place. The antennas provided by Verint Video Solutions are designed to be mounted on a mast or pole of 2–3 inch (5–7.5 cm) diameter.

To install the antenna:

1. Install the antenna above the S1100w. If you bought your antenna from Verint Video Solutions, use the supplied pole mount bracket.

2. Screw the SMA connector of the antenna cable to the S1100w main antenna port and tighten it with a 0.25-inch (0.6 cm) wrench.

   Warning: Do not over-tighten to avoid damaging the connector. The recommended torque is 8 lb-in. (100 N-cm). You could use a calibrated SMA torque wrench (for instance, from the Pasternack company, available at www.pasternack.com).

3. Apply two or three layers of electrical tape around all RF (radio frequency) connections.

   The antenna cable and connectors are weather-tight; however, vibration caused by the wind will over time loosen the connectors and reduce the efficiency of the gaskets. The electrical tape will prevent this situation.

4. Carefully align the antennas of the S1100w and outdoor wireless bridge so that they have a clear RF line of sight.

5. To improve the signal level between both devices, use the antenna alignment utility from SConfigurator.

Status LED

The status LED is a bicolor (green-red) LED that provides detailed information on the current state of the transmitter.

Condition	Indication
Steady red	The device is powering up.
Flashing red (1 sec. intervals)	The IP address of the device is already assigned to another device in the network.
Flashing green (3 sec. intervals)	The firmware has started, but RF communication is not established.
Flashing green (1 sec. intervals)	The firmware has started, RF communication is established, but no video/serial* data is transmitted.

Condition	Indication
Flashing green (0.2 sec. intervals)	The firmware has started, RF communication is established, and video/serial* data is transmitted.
Three consecutive red blinks every 2 sec.	No video source is detected and no video is transmitted.
Flashing green-red (1 sec. intervals)	The device is undergoing a firmware update.
Flashing red (0.1 sec. intervals)	The device is being identified.

* At least one of them must be transferred to get the LED condition.

The following power-up conditions are abnormal:

- LED not lit—Check the power supply and cabling. If power is available and the LED stays off, call Verint Video Solutions technical support for assistance.
- Steady red LED—There is an internal error that prevents the device from starting normally. Power down the device, wait 30 seconds, then power it up. If the condition persists, call Verint Video Solutions technical support.
- Flashing green-red LED not during a firmware update—The device requires a new firmware with a serial connection.

Index

Numerics

24V AC power connection warning iii

A

abnormal power-up condition 23
address, IP 14
antenna
  distance between 18
  external 21
  integrated 3

C

CAB9P cable 10
camera data port configuration 2
casing of the device 4
CD, Utilities ix
characteristics of the device 2
CLI (command line interface) main menu 12
COM port 11
communication between S3100 and S1100w 16
computer requirements 8
configuration
  camera data port 2
  device 9–15
  order, in the wireless cell 8
connection
  point-to-point 16
  power iii
  SConfigurator and device 11
  serial device and transmitter 20

D

description form 27
distance between antennas 18

E

enclosure of the device 4
equipment list 3
external antenna 21

F

features of the device 2
form, device description 27

I

installation
  antenna 21
  device 18–21
integrated antenna 3
IP address 14

L

LED, status 22
list of equipment 3

M

main menu of the CLI 12

N

network parameters 14

O

options, when ordering a device 3
order in the configuration process 8

P

parameters, device 12–15
passkey, wireless 13
point-to-point connection 16
power connection, warning on
    24V AC iii
power requirement 4
power up conditions 23
protection, surge 19

R

radio frequency (RF) parameters 13
receiver device 16
requirements
  computer 8
  power 4
RF (radio frequency) parameters 13

S

SConfigurator
  checking communication between devices 16
  console 11
  creating a connection 17
serial port parameters 15
shipment list 3
SmartSight Utilities CD ix
status LED 22
support, technical x
surge protection 19

T

technical support x

U

Utilities CD ix

V

Verint Video Solutions web site x

W

web site, Verint Video Solutions x
wireless parameters 13

Edge Device Description Form

During configuration, write down the following settings that may be required by Verint Video Solutions technical support for troubleshooting:

System	Firmware version
VSIP	VSIP port
Wireless	Average signal
	RF channel
	RF bit rate
	Wireless passkey
Video	Video bit rate
	Frame rate
	Resolution
Network	IP address
	Gateway
	Subnet mask
Security	SSL passkey

Verint Video Solutions
1800 Berlier Street
Laval (Quebec)
Canada
H7L 4S4